WHAT IS CLAIMED IS:

1. A chemical vapor deposition process for depositing an aluminum oxide coating on a hot glass substrate comprising:

preparing a precursor gas mixture comprising an inorganic aluminum halide and an organic ester having a β hydrogen on the alkyl group bonded to the carboxylate oxygen;

maintaining said precursor gas mixture at a temperature below the temperature at which the inorganic aluminum halide reacts with the ester to form an aluminum oxide coating while delivering the gaseous mixture to a coating chamber which opens onto the hot glass substrate; and

introducing the precursor gas mixture into the coating chamber, whereby the gaseous mixture is heated to above the reaction temperature of the aluminum halide and the ester and incorporates oxygen from the ester to cause the deposition of the aluminum oxide coating.

2. The process for depositing the aluminum oxide coating on the substrate as recited in claim 1, wherein said ester is selected from the group consisting of ethyl formate, ethyl acetate, ethyl propionate, isopropyl formate, isopropyl acetate, n-butyl acetate, and t-butyl acetate.

3. The process for depositing the aluminum oxide coating on the glass substrate as recited in claim 1, wherein said inorganic aluminum halide is an inorganic aluminum chloride.

4. The process for depositing the aluminum oxide coating on the glass substrate as recited in claim 3, wherein said aluminum chloride is aluminum trichloride.

5. The process for depositing the aluminum oxide coating on the substrate as recited in claim 1, wherein the substrate is a float glass ribbon.

6. The process for depositing the aluminum oxide coating on the substrate recited in claim 5, wherein the precursor gas mixture flows over the float glass ribbon to be coated under laminar flow conditions.

7. The process for depositing the aluminum oxide coating on a substrate as recited in claim 5, wherein said float glass ribbon is at a temperature in the range of about 1100°-1320°F/590°C-715°C.

8. The process for depositing the aluminum oxide coating on the substrate as recited in claim 1, wherein said ester having a β hydrogen is ethyl acetate and said substrate is a float glass ribbon.

9. The process for depositing the aluminum oxide coating on the substrate as recited in claim 1, wherein the substrate has a silica coating thereon, and said aluminum oxide coating is deposited over the silica coating.

10. The process for depositing the aluminum oxide coating on the glass substrate as recited in claim 1, wherein the aluminum halide in the precursor gas mixture is at a concentration of about 0.5 - 10% by volume.

11. The process for depositing the aluminum oxide coating on a glass substrate as recited in claim 2, wherein the ester in the precursor gas mixture is at a concentration of about 1 to 9 times the concentration of the aluminum halide.

12. The process for depositing the aluminum oxide coating on the glass substrate as recited in claim 1, wherein said aluminum oxide coating has an average refractive index of about 1.5-1.65 in the 400 to 800 nm range of the electromagnetic spectrum.

13. The process for depositing the aluminum oxide coating on the glass substrate as recited in claim 1, wherein said deposition process results in a deposition rate of 200Å/sec. or more.

14. An atmospheric pressure chemical vapor deposition process for depositing an aluminum oxide coating on a hot glass substrate comprising:

preparing a precursor gas mixture comprising an inorganic aluminum halide and an organic ester having a β hydrogen on the alkyl group bonded to the carboxylate oxygen;

maintaining said precursor gas mixture at a temperature below the temperature at which the inorganic aluminum halide reacts to form an aluminum oxide coating while delivering the gaseous mixture to a coating chamber which opens onto the hot glass substrate; and

introducing the precursor gas mixture into the coating chamber, the coating chamber being at, essentially, atmospheric pressure, whereby the gaseous mixture is heated to a temperature above the reaction temperature of the aluminum halide and the ester, and incorporates oxygen from the ester to cause the deposition of the aluminum oxide coating.

15. The process for depositing the aluminum oxide coating on the substrate recited in claim 14, wherein the precursor gas mixture flows over the hot glass substrate to be coated under laminar flow conditions.

16. The process for depositing the aluminum oxide coating on a substrate as recited in claim 15, wherein said hot glass substrate is at a temperature in the range of about 1100°-1320°F/590°C-715°C.

17. The process for depositing the aluminum oxide coating on the substrate as recited in claim 14, wherein said ester having a β hydrogen is ethyl acetate and said substrate is a float glass ribbon.

18. The process for depositing the aluminum oxide coating on the substrate as recited in claim 14, wherein the substrate has a silica coating thereon, and said aluminum oxide coating is deposited over the silica coating.

19. The process for depositing the aluminum oxide coating on the glass substrate as recited in claim 14, wherein the aluminum halide in the precursor gas mixture is at a concentration of about 0.5-10% by volume.

20. The process for depositing the aluminum oxide coating on the glass substrate as recited in claim 14, wherein the ester in the precursor gas mixture is at a concentration of about 1 to 9 times the concentration of the aluminum halide.

21. The process for depositing the aluminum oxide coating on the glass substrate as recited in claim 14, wherein said aluminum oxide coating has an average refractive index of about 1.5-1.65 in the 400 to 800 nm range of the electromagnetic spectrum.

22. The process for depositing the aluminum oxide coating on the glass substrate as recited in claim 14, wherein said deposition process results in a deposition rate of 200Å/sec. or more.

23. A method of utilizing an inorganic aluminum halide and an organic ester having a β hydrogen on the alkyl group bonded to the carboxylate oxygen to form an aluminum oxide coating on a hot glass substrate by chemical vapor deposition.